Statement of

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to the

Assistant Secretary of the Army (Civil Works)

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Comments on the Revision of Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies

The opinions expressed are those of the author and do not reflect, necessarily, the positions the University of Maryland

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It is a distinct privilege to participate in this important and most timely discussion and I want to thank Mr. John Paul Woodley, the Assistant Secretary of the Army (Civil Works), for the opportunity.

I am Gerald E. Galloway, a Glenn L. Martin Institute Professor of Engineering and an Affiliate Professor of Public Policy at the University of Maryland where I teach, do research in water resources and public policy, and serve as a member of the Water Resources Collaborative.

My message today is straightforward. Our nation faces significant water resource challenges and we are not now properly addressing these water issues. Climate change will only exacerbate the challenges and place greater fiscal and management burdens on our society. Dealing with the future will require that the documents that guide the development of water projects produce projects that truly meet the needs of the Nation. These documents must have National status and not just be Corps Regulations. History has shown us that ad-hoc approaches with individual projects – exemptions by the Secretary of the Army - do not work and have little support in OMB.

For 25 years, *The Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies* (P&G) have formed the ground rules under which important water resource development projects are studied, authorized, and then funded. Over this period the P&G have been focused on the economic benefits of proposed projects rather than on all of benefits and costs that projects might produce – economic, environmental, and social.[ii] In eliminating in 1983 *the Principles and Standards* and promulgating *Principles and Guidelines*, the Reagan administration, made national economic development the sole objective of water resources development, thereby reducing or, as many would contend, eliminating consideration of environmental benefits, public safety, and other social impacts.

The *Principles and Standards* that preceded the current *Principles and Guidelines* were the product of years of effort and a deliberate bipartisan move by the Congress to ensure that the authorization of water resource projects was based on more than economic benefits. The history of the Water Resources Planning Act of 1965 speaks to the broad approach directed by the Congress in passing the act. Subsequent efforts by both Republican and Democrat Administrations to promulgate and improve the *Principles and Standards* also focused on the need to consider multiple accounts in establishing the benefits and costs of projects. *Principles and Standards* were pointed to toward full consideration of national economic development, as well as environmental quality, regional economic development and other social effects.

Review after review by the National Academies and study after study by other bodies have brought the shortcomings of the present procedures to the attention of the Administration and the Congress, but these recommendations for change have largely been ignored by these bodies. Finally, last year the Congress reacted and directed the preparation that you are currently undertaking of new principles and guidelines.

The calls for significant revisions have been frequent. In 1994, a White House Study of the Great Mississippi Flood of 1993 indicated that:

> The principal federal water resources planning document, *Principles and Guidelines,* is outdated and does not reflect a balance among the economic, social, and environmental goals of the nation. This lack of balance is exacerbated by a present inability to quantify, in monetary terms, some

> environmental and social impacts. As result, these impacts are frequently understated or omitted. Many critics of *Principles and Guidelines* see it as biased against nonstructural approaches
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> To focus attention on comprehensive evaluation of all federal water project and program effects, the President should immediately establish environmental quality and national economic development as co-equal objectives of planning conducted under the *Principles and Guidelines. Principles and Guidelines* should be revised to accommodate the new objectives and to ensure full consideration of nonstructural alternatives'
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> The *P&G* are now more than ten years old, and several areas are in need of thorough review. (IFMRC 1994)

In 1999, A National Research Council committee examined the Corps' planning processes and noted in its report that:

> The committee recommends that **the federal *Principles and Guidelines* be thoroughly reviewed and modified to incorporate contemporary analytical techniques and changes in public values and federal agency programs.** The executive branch, which approved the *P&G* in 1983, should take the necessary steps to update the guidelines so that they reflect contemporary planning principles and methods and address the full range of responsibilities in the Corps' work program [original emphasis].
>
> The executive branch should use its authority to find the means to modernize the *P&G* so that the document better reflects contemporary water planning theories and practices. (NRC 1999)

A 2000 report by a National Research Council committee investigating the Corps' methodologies for flood risk determination indicated that:

> The *Principles and Guidelines* requirement that the Corps select the alternative that maximizes net economic benefits to the nation has important implications for risk analysis applications and the construction of Corps levees. In a Corps flood damage reduction study, levee height is determined according to the National Economic Development criterion (i.e., based on prescribed benefit calculation procedures), rather than according to a levee's ability to withstand a flood of a given magnitude. As the Corps's *Digest of Water Resources Policies and Authorities* states, "There is no minimum level of performance or reliability required for Corps projects; therefore, any project increments beyond the NED plan represent explicit risk management options" (USACE, 1999a).
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> **To appropriately include such consequences and their relative importance, the committee recommends that the ecological, health, and other social effects of Corps flood damage reduction studies, and the tradeoffs between them, be quantified to the extent possible and included in the National Economic Development Plan.** More explicit efforts at including these types of consequences and values in the Corps's benefit –cost calculations should increase social benefits of the Corps's flood damage reduction studies. Examples of these consequences that are not included in the current benefit–cost guidelines contained within the *Principles and Guidelines* include lives saved (by structural and nonstructural projects),

> damages avoided to structures in floodplain evacuation projects, and preservation of biodiversity. Appropriate revisions of existing legislation, consistent with this recommendation, may have to be enacted by the U.S. Congress. The Corps should seek guidance from the Office of Management and Budget and seek consistency with other federal agencies on the use of alternative metrics for incorporating potential loss of life, environmental impacts, and other effects of floods. (NRC 2000) [original emphasis].

While reviewing the issues associated with maintenance of the ecosystem of the Missouri River, another National Research Council committee found that:

> Executive Order 12893 strengthened the benefit–cost requirement for federal agencies at the same time that it opened the way for wider consideration of environmental values by urging greater quantification of all types of benefits and costs, but also the use of qualitative measures reflecting values that are not readily quantified (Office of the President, 1994). However, the *P&G* document has not been modified to include such approaches. (NRC 2002)

The Water Resources Development Act of 2000 (Section 216) requested the National Academies review Corps peer review procedures and methods of analysis. This effort was divided into five semi-independent studies. The committee looking at analytical methods found that:

> **The Principles and Guidelines should be revised to better reflect contemporary management paradigms, analytical methods, legislative directives, and social, economic, and political realities. The new planning guidance should apply to water resources implementation studies and similar evaluations carried out by all federal agencies. A revised version of the P&G document should be periodically and formally reviewed and updated**. [original emphasis]
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> No significant action has yet taken place within the Administration in response to this recommendation that has been voiced multiple times by previous groups.
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> **Benefit-cost analysis should not be used as the lone criterion in deciding whether a proposed planning or management alternative in a Corps planning study should be approved** (NRC 2004) [original emphasis].

The committee examining river basin planning techniques noted that:

> Comprehensive guidance on integrated planning is not found in the current *Principles and Guidelines (P&G)*, particularly regarding the evaluation of non-commensurate social, environmental, and economic objectives and the identification of appropriate spatial and temporal scales to analyze a diverse range of project objectives. Existing guidance is thorough on traditional benefit-cost analysis (BCA), but the heavy reliance on analytical methods must be relaxed in the context of multi-objective, multi-stakeholder integrated studies. The *P&G* has not been revised for 20 years and should be updated to provide sufficient and balanced information on how to conduct integrated water systems planning within river basins and coastal systems.

In a separate study of water resources planning for the Upper Mississippi River and Illinois Waterway, a National Research Council committee reported that:

> Another example of federal direction that should be revised and clarified is within the federal *Principles and Guidelines* (*P&G*), which has been unchanged since 1983. This 22-year-old document is regarded by many as the conceptual basis of U.S. federal water resources planning studies, yet it is silent on the subject of ecosystem restoration. The Corps adopted a National Ecosystem Restoration account in its 2000 planning guidance (USACE, 2000) as a legitimate project purpose and objective, yet the *P&G* continues to support single-purpose project planning dedicated to the maximization of National Economic Development. The report from the 216 study panel on analytical methods notes this and other shortcomings of the *P&G*, leading to a recommendation in that report that the *P&G* be revised Upper Mississippi (NRC 2005).

Clearly there is reason to revise the *Principles and Guidelines*. I appreciate what the Corps has done to develop its own broader planning documents; but again, they have not been endorsed by either the Congress or the administration and do not provide the kind of top cover that the Corps should have as it moves forward.

As a result of the failure of the Congress and the Administration to revise *Principles and Guidelines*, many projects with strong environmental, social, and public safety benefits have been left on the table to the detriment of efforts to protect and enhance our natural environment, provide social justice for those who need our support, and offer life safety to the many people who live at risk in areas where the economic benefits alone do not justify their protection.

I would urge you, in the conduct of this review, and in the preparation of the new principles and guidelines to closely follow the direction of the Congress by ensuring that the new objectives for projects of the Corps of Engineers include:

- Maximization of sustainable economic development
- Avoidance of unwise use of floodplains and flood-prone areas and minimization of the adverse impacts and vulnerabilities in any case in which a floodplain or flood-prone area must be used; and
- Protection and restoration of the functions of natural systems and mitigation of any unavoidable damage to natural systems.

In addition, I believe that three additional objectives should be explicitly included:

- Protection of public safety
- Maximization of positive social effects that stem from a proposed project; and
- Development of projects within the context of the watershed in which they are located.

These objective are in line the Congressional guidance or “considerations” found in section 2031 (b) (3) of WRDA 2007.

Under the current guidelines, a $2 million project protecting a $4 million home would is seen as providing greater benefits to the Nation than the same $2 million project protecting forty $25,000 homes and the families that live in these structures. This does not pass the common sense test. If protection of public safety were an objective, the benefits of providing protection to these families would have to be considered in the final accounting. It

is interesting to note, that a former Acting Assistant Secretary of the Army (CW) recently testified that," The reason we haven't incorporated human life into evaluations is because we have just chosen as a policy not to do it. People are wary…for 9/11 the value of human life was quantified. EPA quantifies it, incorporates it into benefit cost analysis. It is merely a practice of the agencies. There is no reason to have to change the P&G to change that policy" (US House 2005). But, why has it not been done? I would argue that the need for this accounting should be explicit in the new principles and guidelines.

In consideration of public safety, it will be important to closely examine the 100-year de facto national standard for flood protection. Two recent studies conducted for FEMA – one by an Interagency Levee Policy Review Committee (Interagency 2006) and the other by the Water Resources Collaborative at the University of Maryland (Galloway 2006), have indicated that a reasonable level of protection should be at the 500-year or standard project flood level. California has already moved to raise its standard to the 200-year level.

A recent report by the Corps' Institute of Water Resources indicated that, "While water resources planning has primarily been focused on enhancing economic well-being as portrayed in the National Economic Development (NED) account, well-being is a multi-faceted concept grounded in human needs that include distributive justice, social connectedness, equality, and health and safety considerations, in addition to economic well-being factors. Information on these multiple dimensions of well-being is increasingly being used by Federal agencies, the World Bank, and other countries to provide a more comprehensive understanding of quality of life and livability issues. A water resources planning process that incorporates a multi-dimensional conception of well-being positively influences the degree to which water resources solutions will be judged as effective, acceptable, and fair" (Dunning and Durden 2007). Establishing other social effects as an objective would go far in addressing this challenge.

Establishing a watershed objective addresses two issues – the pure practicality of engineering a project within the context of related projects and activity within the same watershed (the upstream-downstream issues), and the establishment in study planning of the need for the Congress to fund not only the project study but those elements necessary to place the project in the watershed environment. In addition, requiring a watershed approach will ensure that the Corps collaborates closely with appropriate federal and state agencies operating in the watershed. I should also note that the three National Water Policy Dialogues conducted by the American Water Resources Association reported that a major shortfall in the current federal approach to water resources development was a failure to work in a watershed context.

Clearly, as directed by Congress, the new principles and guidelines should employ the best available economic and analytical techniques, and modern risk analysis; use of contemporary water resources paradigms, including integrated water resources management and adaptive management; and, evaluation methods that ensure that water resources projects are justified by public benefits. They should also include full use of nonstructural approaches to flood risk reduction and, I would add, elimination of bias against the use of non-structural approaches.

I would also recommend that the new principles and guidelines require project planning to include full consideration of future conditions in the watershed in which the proposed project might be developed. These future conditions should include the potential hydrologic and hydraulic impacts of climate change and any forecast development in the region that might impact the project area. Such action would be in consonance with the recommendation of the previously mentioned studies conducted for FEMA (Interagency 2006 and Galloway 2006).

I would also urge that you recommend to the Administration and the Congress that the principles and guidelines that you develop also be applied to other federal agencies involved in water resources development. The current principles and guidelines, promulgated by the President in 1983, apply to four federal agencies; The Corps, the Bureau of Reclamation, the Natural Resources Conservation Service and the TVA, but do not cover projects supported by other agencies such as the Environmental Protection Agency, the Small Business Administration, and the Federal Emergency Management Agency. It is not appropriate to have one set of principles and guidelines for the Corps of Engineers and other principles or none for agencies involved in similar work throughout the nation. I find it interesting that the Congress directed the secretary of the Army to, in effect, substitute his version of the principles and guidelines for those promulgated by the President without requiring reconciliation of the Corps principles and guidelines with the Administration's *Principles and Guidelines,* which will continue to exist.

I compliment you on your effort to obtain public input for this important effort and thank you again for the opportunity to speak.

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He has been a consultant to the Executive Office of the President, and has assisted the U.S. Water Resources Council, World Bank, Organization of American States, Tennessee Valley Authority, U.S. Army Corps of Engineers and various other organizations in water resources related activities. He was appointed by President Reagan to the Mississippi River Commission and served on the Commission for seven years. He was also a presidential appointee to the American Heritage Rivers Initiative Advisory Committee. Following the disastrous 1993 Mississippi Flood, he was assigned to the White House and led an interagency study that investigated the causes of that flood and made recommendations to improve the nation's floodplain management. He is a past member of the Board the Hudson River Environmental Society and is currently serving as a Director of the Hudson River Foundation for Science and Technology. He commanded the Army Corps of Engineers District in Vicksburg, Mississippi from 1974 to 1977 and has served on the faculty of the U.S. Military Academy at West Point. In 1990, he was promoted to Brigadier General and appointed the ninth Dean of the Academic Board (Chief Academic Officer) of the Military Academy. He retired from active duty after a 38 year military career.

Dr. Galloway holds master's degrees from Princeton, Penn State, and the U.S. Army Command and General Staff College. Dr. Galloway received his Ph.D. degree in geography from the University of North Carolina. Dr. Galloway is a member of the National Academy of Engineering, a Distinguished Member the American Society of Civil Engineers, an Honorary Diplomate of the American Academy of Water Resources Engineers and a registered professional engineer in New York.

[ii] The P&G clearly state that, the Federal objective of water and related land resources project planning is to contribute to national economic development consistent with protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements.